

# PELIN ANGIN

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## RESEARCH INTERESTS

- High-Performance Mobile-Cloud Computing (context-aware decision-making, dynamic computation offloading, cloud performance optimization)
- Cloud Computing Privacy (privacy-preserving data dissemination, tamper-resistant code execution)
- Distributed Systems Security (resilient and agile defense, SOA security auditing and enforcement)
- Assistive Technologies (mobile-cloud computing for the visually and/or hearing impaired)

## EDUCATION

- Ph.D., Computer Science, Purdue University (CGPA: 3.91/4.00) 2007 - 2013  
Dissertation: *Autonomous Agents-Based Mobile-Cloud Computing*  
Advisor: Prof. Bharat K. Bhargava
- B.S., Computer Engineering, Bilkent University 2003 – 2007  
CGPA: 3.92/4.00 (ranked 4<sup>th</sup> among 150)

## WORK EXPERIENCE

- Assistant Professor, Middle East Technical University Department of Computer Engineering (April 2017 – current)
- Postdoctoral Research Associate, Purdue University Computer Science Department (August 2015-December 2016)
- Visiting Assistant Professor, Purdue University Computer Science Department (August 2014-2015)
- Visiting Researcher, Purdue University Computer Science Department (January-August 2014)
- Computation Student Intern, Lawrence Livermore National Laboratory (June-August 2010)
- Teaching Assistant, Purdue University Computer Science Department (2008-2012)  
Courses: *Introduction to Artificial Intelligence, Programming with Multimedia Objects, Software Engineering, Information Systems*
- Software Test Engineering Intern, Borland (June-August 2006)
- RETINA Research Project Intern, Bilkent University (June-August 2006)
- Software Test Engineering Intern – TRT Broadcast Archives (June-August 2005)

## PUBLICATIONS

### Journal

1. A Systematic Approach for Attack Analysis and Mitigation in V2V Networks. B. Bhargava, A.M. Johnson, G.I. Munyengabe, P. Angin. *Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications*, Vol. 7, No. 1, pp. 79-96, 2016.
2. A Computational Dynamic Trust Model for User Authorization. Y. Zhong, B. Bhargava, Y. Lu, P. Angin. *IEEE Transactions on Dependable and Secure Computing (TDSC)*, Vol. 12, No. 1, pp. 1-15, 2015.

3. Extending the Agile Development Approach to Develop Acceptably Secure Software. L. ben Othmane, P. Angin, H. Weffers, B. Bhargava. IEEE Transactions on Dependable and Secure Computing (TDSC), Vol. 11, No. 6, pp. 497-509, 2014.
4. A Simulation Study of Ad Hoc Networking of UAVs with Opportunistic Resource Utilization Networks. L. Lilien, L. ben Othmane, P. Angin, A. DeCarlo, R. Salih, B. Bhargava. Elsevier Journal of Network and Computer Applications, Vol. 38, pp. 3-15, 2014.
5. An Agent-based Optimization Framework for Mobile-Cloud Computing. P. Angin and B. Bhargava. Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications, Vol. 4, No. 2, pp. 1-17, 2013.
6. A Time-Evolution Model for the Privacy Degree of Information Disseminated in Online Social Networks. L. ben Othmane, H. Weffers, P. Angin, B. Bhargava. International Journal of Communication Networks and Distributed Systems, Vol. 11, No. 4, pp. 412-430, 2013.
7. A Confidence Ranked Co-Occurrence Approach for Accurate Object Recognition in Highly Complex Scenes. P. Angin, B. Bhargava. Journal of Internet Technology, Vol. 14, No. 1, 2013.
8. A Trust-based Approach for Secure Data Dissemination in a Mobile Peer-to-Peer Network of AVs. B. Bhargava, P. Angin, R. Sivakumar, R. Ranchal, M. Linderman, A. Sinclair. International Journal of Next Generation Computing, Vol. 3, No. 1, 2012.
9. Real-time Mobile-Cloud Computing for Context-Aware Blind Navigation. P. Angin, B. Bhargava. International Journal of Next Generation Computing, Vol. 2, No. 2, 2011.

### **Conference/Workshop**

10. RaaS and Hierarchical Aggregation Revisited. R. Ranchal, S. P. Singh, P. Angin, A. Mohindra, H. Lei, B. Bhargava. To appear at the 24<sup>th</sup> IEEE International Conference on Web Services (ICWS'17).
11. A Monitoring Approach for Policy Enforcement in Cloud Services. R. Fernando, R. Ranchal, B. Bhargava, P. Angin. To appear at the 10<sup>th</sup> IEEE International Conference on Cloud Computing (CLOUD'17).
12. An MTD-based Self-Adaptive Resilience Approach for Cloud Systems. M. Villarreal-Vasquez, B. Bhargava, P. Angin, N. Ahmed, D. Goodwin, K. Brin, J. Kobes. To appear at the 10<sup>th</sup> IEEE International Conference on Cloud Computing (CLOUD'17).
13. Adaptable Safety and Security in V2X Systems. M. Villarreal-Vasquez, B. Bhargava, P. Angin. To appear at 2<sup>nd</sup> IEEE International Congress on Internet of Things (ICIOT'17).
14. Tamper-Resistant Autonomous Agents-Based Mobile-Cloud Computing. P. Angin, B. Bhargava, R. Ranchal. IEEE/IFIP Network Operations and Management Symposium (NOMS'16), pp. 843-847, 2016.
15. A Distributed Monitoring and Reconfiguration Approach for Adaptive Network Computing. B. Bhargava, P. Angin, R. Ranchal, S. Lingayat. 6<sup>th</sup> International Workshop on Dependable Network Computing and Mobile Systems (DNCMS) (in conjunction with SRDS'15), pp. 31-35, 2015. (*Best paper award*)
16. Impact of Initial Target Position on Performance of UAV Surveillance Using Opportunistic Resource Utilization Networks. L. Lilien, L. ben Othmane, P. Angin, B. Bhargava, R. Salih, A. DeCarlo. 6<sup>th</sup> International Workshop on Dependable Network Computing and Mobile Systems (DNCMS) (in conjunction with SRDS'15), pp. 57-61, 2015.

17. A Self-Cloning Agents Based Model for High-Performance Mobile-Cloud Computing. P. Angin, B. Bhargava, Z. Jin. 8<sup>th</sup> IEEE International Conference on Cloud Computing (CLOUD'15), pp. 301-308, 2015.
18. Using Assurance Cases to Develop Iteratively Security Features Using Scrum. L. ben Othmane, P. Angin, B. Bhargava. 1<sup>st</sup> International Software Assurance Workshop (in conjunction with ARES'14), pp. 490-497, 2014.
19. A Case for Societal Digital Security Culture. L. ben Othmane, H. Weffers, R. Ranchal, P. Angin, B. Bhargava, M.M. Mohamad. 28<sup>th</sup> IFIP TC 11 International Conference, SEC'13, pp. 391-404, 2013.
20. An End-to-End Security Auditing Approach for Service Oriented Architectures. M. Azarmi, B. Bhargava, P. Angin, R. Ranchal, N. Ahmed, A. Sinclair, M. Linderman, L. ben Othmane. 31<sup>st</sup> IEEE International Symposium on Reliable Distributed Systems (SRDS'12), pp. 279-284, 2012.
21. An Entity-centric Approach for Privacy and Identity Management in Cloud Computing. P. Angin, B. Bhargava, R. Ranchal, N. Singh, L. ben Othmane, L. Lilien, M. Linderman. 29<sup>th</sup> IEEE International Symposium on Reliable Distributed Systems (SRDS'10), pp. 177-183, 2010.
22. A Mobile-Cloud Collaborative Traffic Lights Detector for Blind Navigation. P. Angin, B. Bhargava, S. Helal. 11<sup>th</sup> International Conference on Mobile Data Management (MDM), pp. 396-401, 2010.
23. A Shrinkage Approach for Modeling Nonstationary Relational Autocorrelation. P. Angin, J. Neville. 8<sup>th</sup> IEEE International Conference on Data Mining (ICDM), pp. 707-712, 2008.
24. A Shrinkage Approach for Modeling Nonstationary Relational Autocorrelation. P. Angin, J. Neville. 2<sup>nd</sup> SIGKDD ACM Workshop on Social Network Mining and Analysis (in conjunction with KDD'08), 2008.

### Technical Reports

25. B. Bhargava, M. Azarmi, P. Angin, "End-to-End Service Oriented Architectures (SOA) Security Project," Purdue University Final Technical Report No. AFRL-RI-RS-TR-2012-049, 2012.
26. L. ben Othmane, P. Angin, H. Weffers, and B. Bhargava, "Extending the Agile Development Process to Develop Acceptably Secure Software," Computer Science Report No. 13-06, Eindhoven University of Technology, 2013.

### Poster Session

27. Systematic Attack Analysis and Adaptive Security in V2V Networks. B. Bhargava, P. Angin, M. Villarreal-Vasquez, A.M. Johnson, G.I. Munyengabe, D. Ulybyshev. Poster at 17<sup>th</sup> CERIAS Security Symposium, Purdue University, April 2016.
28. PD3: Policy-based Distributed Data Dissemination. R. Ranchal, D. Ulybyshev, P. Angin, B. Bhargava. Poster at 16<sup>th</sup> CERIAS Security Symposium, Purdue University, March 2015. (*Best poster award*)

### HONORS AND AWARDS

- Best paper award at 6<sup>th</sup> International Workshop on Dependable Network Computing and Mobile Systems (2015)
- Best poster award at 16<sup>th</sup> CERIAS Security Symposium, Purdue University (2015)
- Phi Kappa Phi Love of Learning Award (2013)

- Member of Phi Kappa Phi Honor Society (2013)
- Bilsland Dissertation Fellowship, Purdue University Graduate School (2013)
- Purdue Research Foundation Summer Research Grant (2009, 2011, 2012)
- Raymond Boyce Graduate Teacher Award (2012)
- ACM Graduate Teaching Assistant Award (2011)
- Purdue University Center of Academic Excellence Teaching Award (2011)
- Member of Golden Key International Honor Society (2011)
- Scholarship for Google Workshop for Women Engineers (2009)
- Member of Upsilon Pi Epsilon Computer Science Honor Society (2009)
- Ross Fellowship for PhD study, Purdue University Computer Science Department (2007)
- Full scholarship for BS in Computer Engineering, Bilkent University (2003-2007)
- High Honor Student at Bilkent University for all semesters (2003-2007)
- Ranked 312<sup>th</sup> among 1.5 million entrants in the Turkey University Admissions Exam, 2003
- Ranked 1<sup>st</sup> among 700 at graduation from TED Ankara College Foundation High School

## **TECHNICAL SKILLS**

Java, C, C++, Objective-C, SQL, PL/SQL, PHP, Matlab, Python, XML, HTML, Android

## **RECENT FUNDED PROJECTS**

- Secure/Resilient Systems and Data Dissemination/Provenance – Funded by Northrop Grumman Corporation (September 2016 – August 2017)
- Privacy-Preserving Data Dissemination and Adaptable Service Compositions in Trusted and Untrusted Cloud – Funded by Northrop Grumman Corporation (September 2015 – August 2016)
- SafeITS: Engineering Security and Performance Aware Vehicular Applications for Safer and Smarter Roads – Funded by Qatar National Research Fund (January 2015 – January 2018)
- Monitoring-Based System for E2E Security Auditing and Enforcement in Trusted and Untrusted SOA – Funded by Northrop Grumman Corporation (September 2014 – August 2015)
- End-to-End Security Policy-Auditing and Enforcement in Service-Oriented Architecture – Funded by Northrop Grumman Corporation (September 2013 – August 2014)
- End-to-End SOA Security – Funded by US Air Force Research Laboratory (October 2010 – 2011)

## **TALKS AND PRESENTATIONS**

- “Bileşik Web Hizmetlerinde Detaylı Güvenlik İlkeleri Uygulamak için Bir Çerçeve,” talk at TOBB University Department of Computer Engineering, 1 February 2017.
- “How to Build Agile Cloud Systems: Challenges and Enabling Technologies,” tutorial at IEEE International Conference on Cloud Computing, San Francisco, CA, 27 June 2016.
- “Tamper-Resistant Autonomous Agents-Based Mobile-Cloud Computing,” poster presentation at IEEE/IFIP Network Operations and Management Symposium, Istanbul, Turkey, April 28, 2016.
- “Privacy-Preserving Data Dissemination and Adaptable Service Compositions in Trusted and Untrusted Cloud,” talk at Northrop Grumman Cybersecurity Research Consortium, McLean, VA, April 25, 2016.
- “Achieving High Performance in Mobile-Cloud Computing with Self-Evaluating, Self-Protecting Agents,” seminar at Hacettepe University Department of Computer Engineering, Ankara, Turkey, March 18, 2016.

- “A Distributed Monitoring and Reconfiguration Approach for Adaptive Network Computing,” talk at International Workshop on Dependable Network Computing and Mobile Systems (DNCMS), Montreal, QC, Canada, September 2015.
- “A Self-Cloning Agents Based Model for High-Performance Mobile-Cloud Computing,” talk at IEEE International Conference on Cloud Computing, New York, NY, July 2015.
- “Achieving High Performance in Mobile-Cloud Computing with Self-Evaluating, Self-Protecting Agents,” seminar at Bogazici University Department of Computer Engineering, Istanbul, Turkey, June 18, 2015.
- “Achieving High Performance in Mobile-Cloud Computing with Self-Evaluating, Self-Protecting Agents,” seminar at Bahcesehir University Department of Computer Engineering, Istanbul, Turkey, June 16, 2015.
- “Achieving High Performance in Mobile-Cloud Computing with Self-Evaluating, Self-Protecting Agents,” seminar at Middle East Technical University Department of Computer Engineering, Ankara, Turkey, June 3, 2015.
- “Monitoring-Based System for E2E Security Auditing and Enforcement in Trusted and Untrusted SOA,” talk at Northrop Grumman Cybersecurity Research Consortium, McLean, VA, April 2015.
- “Mobile-Cloud Computing for Accessible Classroom Technologies,” invited talk at Independence Science, Learning a New Direction Conference on Disability, West Lafayette, IN, November 2014.
- “End-to-End Security Policy-Auditing and Enforcement in Service-Oriented Architecture,” talk at Northrop Grumman Cybersecurity Research Consortium, McLean, VA, May 2014.
- “Secure and Adaptable Mobile-Cloud Computing,” poster presentation at Grace Hopper Celebration of Women in Computing, Baltimore, MD, October 2012.
- “End-to-End SOA Security,” talk at US Air Force Research Laboratory, Rome, NY, Sept. 2011.
- “A Mobile-Cloud Pedestrian Crossing Guide for the Blind,” talk at International Conference on Advances in Computing & Communication, NIT Hamirpur, India, 2011.
- “A Mobile-Cloud Collaborative Approach for Context-Aware Navigation of the Blind,” invited talk at Independence Science, Learning a New Direction Conference on Disability, West Lafayette, IN, November 2010.
- “A Mobile-Cloud Collaborative Approach for Context-Aware Blind Navigation,” talk at Grace Hopper Celebration of Women in Computing New Investigators Panel, Atlanta, GA, September 2010.
- “A Mobile-Cloud Collaborative Traffic Lights Detector for Blind Navigation,” talk at International Conference on Mobile Data Management, Kansas City, MO, May 2010.
- “A Shrinkage Approach for Modeling Nonstationary Relational Autocorrelation,” talk at IEEE International Conference on Data Mining, Pisa, Italy, December 2008.
- “A Shrinkage Approach for Modeling Nonstationary Relational Autocorrelation,” poster presentation at SIGKDD ACM Workshop on Social Network Mining and Analysis, Las Vegas, NV, August 2008.

## **PROFESSIONAL SERVICE**

### **Chair/Editor:**

- Editorial board member of Services Transactions on Internet of Things (STIOT) (2016-current)
- Editorial board member of SERSC International Journal of Internet of Things and its Applications (2016-current)
- Short paper track chair at 2<sup>nd</sup> S2 International Conference on Internet of Things (S2 ICIOT’17)
- Editorial board member of Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications (JOWUA) (2015-current)
- Applications track co-chair of 9<sup>th</sup> IEEE International Conference on Cloud Computing (CLOUD’16)
- Session chair at 9<sup>th</sup> IEEE International Conference on Cloud Computing (CLOUD’16)
- Session chair at 8<sup>th</sup> IEEE International Conference on Cloud Computing (CLOUD’15)

**Program Committee Member:**

- 6<sup>th</sup> International Conference on Mobile & Wireless Networks (MoWiN 2017)
- International Conference on Intelligent, Secure and Dependable Systems in Distributed and Cloud Environments (ISDDC 2017)
- 5<sup>th</sup> International Conference on Parallel, Distributed Computing Technologies and Applications (PDCTA-2016)
- 3<sup>rd</sup> International Conference on Computer Science and Technology (ICCST-2016)
- Workshop on Big Data in Smart Grids (co-located with 2016 IEEE Big Data Conference)
- IEEE BigData Congress (2015, 2016)
- International Symposium on Women in Computing and Informatics (WCI'15, WCI'16)
- International Symposium on Security in Computing and Communications (SSCC'15)
- Mobile Collaborative Crowdsourcing and Sensing Workshop (with MDM'14)
- Computer Science Student Workshop (CSW'13)
- Judge at Grace Hopper Conference Student Poster and Research Competition (2014)

**Journal Review:**

- IEEE Transactions on Mobile Computing
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Cloud Computing
- IEEE Transactions on Image Processing
- IEEE Transactions on Dependable and Secure Computing
- Elsevier Journal of Network and Computer Applications
- International Journal of Web Services Research (IJWSR)
- Applied Computing and Informatics
- Journal of Grid Computing
- The Computer Journal
- International Journal of Communication Systems
- IET Computer Vision
- Computing – Springer
- Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications
- Journal of Aerospace
- Engineering Review

**Conference/Workshop Review:**

- International Conference on Unmanned Aircraft Systems
- IEEE INFOCOM Workshop on Mobile Cloud and Virtualization
- IEEE International Symposium on Telecommunication Technologies
- IEEE International Conference for Computer and Communication Technology
- International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery

**External Review:**

- International Journal of Communication Networks and Distributed Systems
- Journal of Multimedia Tools and Applications
- International Conference on Privacy, Security and Trust
- Social Network Book

**EXTRACURRICULAR ACTIVITIES**

- Member of Purdue University Computer Science Diversity Committee, 2011-2013
- Treasurer of Turkish Student Association at Purdue University, 2009
- Vice President of Turkish Student Association at Purdue University, 2008

- Member of Women In Science Program at Purdue University, 2007
- Founding member - treasurer of United Nations Turkey Association Youth Section, 2006
- Active member of the Young Enlightenment Club at Bilkent University, 2006
- Active member of the Engineering Association at Bilkent University, 2005
- Instructor in the Volunteer Education Project for underprivileged primary school students, 2005